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Erin N. Rosskopf

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EXAMINER

SCHLENTZ, NATHAN W

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/828,802	Applicant(s) ROSSKOPF ET AL.	
	Examiner Nathan W. Schlientz	Art Unit 1616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 August 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10, 13-17 and 20-24 is/are pending in the application.
- 4a) Of the above claim(s) 3-8, 14, 16 and 17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 9, 10, 13, 15 and 20-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of Claims

Claims 1-10, 13-17 and 20-24 are pending, and claims 3-8, 14 and 16-17 are withdrawn from consideration. Thus, claims 1, 2, 9, 10, 13, 15 and 20-24 are examined herein on the merits for patentability. No claim is allowed at this time.

Withdrawn Rejections

Rejections and/or objections not reiterated from the previous Office Action are hereby withdrawn. The following rejections and/or objections are either reiterated or newly applied. They constitute the complete set of rejections and/or objections presently being applied to the instant application.

Response to Arguments

Applicant's Remarks filed 04 August 2008 with respect to the rejection of claims 1, 2, 9-13, 15 and 18-23 have been fully considered but are not persuasive. The examiner's responses to the arguments are discussed below.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1,148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
1. Claims 1, 2, 9, 10, 13, 15, 20 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bergmann et al. (DE 257 379 A1) in view of Swezey (US 2,649,363) and Lewis (US 3,865,936).

Applicant's claims

Applicants claim a method for reducing pests in soil comprising fumigating the soil with bromoacetic acid, wherein said applying is pre-bedding, pre-transplant, pre-seed, or pre-plant.

Determination of the scope and content of the prior art

(MPEP 2141.01)

Bergmann et al. teach a method for killing or fighting undesirable plant growth (i.e. reduce the infestation of potato tubers with *Phytophthora infestans*) without damaging the succeeding cultures comprising applying combinations of 3,5-dihalogenated 4-hydroxy benzonitriles with monohalogenated acetic acids (pg. 2, ln. 2-11). Bergmann et al. teach that the monohalogenated acetic acids include monochloroacetic acid and monoiodoacetic acid (claim 1; and pg. 6, l. 7). Bergmann et

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al. teach that before the first sowing, the soil was sprayed with monochloroacetic acid and the dessicative effect in % on *Solanum tuberosum* (potato tuber) of the monochloroacetic acid alone was 100% toward the leaf at all concentrations tested and 27, 38, 27 and 49% toward the stem at concentrations of 1.5, 1.5, 1.6 and 1.8%, respectively (Example 1). Bergmann et al. also teach that before the first sowing, the soil was sprayed with monoiodoacetic acid and the dessicative effect in % on *Solanum tuberosum* of the monoiodoacetic acid alone was 100% toward the leaf at all concentrations tested and 25 and 66% toward the stem at concentrations of 0.5 and 0.8%, respectively (Example 1).

Bergmann et al. further teach the residual degree of damage of leaves of spring wheat in % evaluated 36 days after sowing, wherein sowing occurred 1, 5, 9 and 13 weeks after active ingredient application (Example 6). Bergmann et al. teach that the mixture of 3,5-dibromo-4-hydroxy benzonitrile with monochloroacetic acid had 0, 10 and 6% damage to the leaves when sowing 1, 5, 9 and 13 weeks after active ingredient application, respectively (Example 6).

Ascertainment of the difference between the prior art and the claims

(MPEP 2141.02)

Bergmann et al. do not teach the haloacetic acid composition to comprise bromoacetic acid, as instantly claimed. However, Swezey teaches the regulation of the growth of undesired vegetation by contacting plants and plant parts with a phytotoxic haloacetic acid compound of the group consisting of monochloroacetic acid, monobromoacetic acid and monoiodoacetic acid (col. 1, ln. 1-13).

Bergmann et al. also do not teach the compositions are effective at controlling weeds, as instantly claimed. However, Swezey teaches that monochloroacetic acid, monobromoacetic acid and monoiodoacetic acid are suitable for controlling the growth of Bermuda grass (*Cynodon dactylon*), Wild Mustard (*Synapis arvensis*), Burclover (*Medicago minima*), Prostrate Pigweed (*Amaranthus Albus*), sedge (*Cyperaceae*), filaree (*Erodium cicutarium*/*Erodium moshatum*), annual grasses, bull mallow (*Malva borealis*), wild oats, fiddleneck (*Phacelia tanacetifolia*), chickweed (*Cerastium* and *Stellaria*) and shepherds-purse (*Capsella bursa-pastoris*) (Examples 1-9). Swezey further teach that the monohaloacetic acids are applied at volumes of 5-20 lbs/acre (col.1, ln. 31-32), 50-100 gallons/acre (col. 2, ln. 25-26), 40 lbs/acre (Example 1), 50 and 100 lbs/acre (Example 2), 20 lbs/acre (Example 3), 25.6 lbs/acre (Example 4), 20 lbs/acre (Example 5), 20, 40, 80, 160 and 320 gallons/acre (Example 5), 20 lbs/acre (Example 6), 35-40 lbs/acre (Example 7), 70 lbs/100 gallons and 300 gallons/acre (Example 8), and 150 gallons/acre (Example 9).

Also, Bergmann et al. do not teach the method of applying the active ingredient to the soil to comprise fumigation, as instantly claimed. However, fumigating soil is a well-known method for applying herbicides to soil in an attempt to control undesired vegetation, as evidenced by Lewis. Lewis teaches that the use of soil fumigants has become quite common and used extensively since the 1940's with thousands of acres being fumigated annually (col. 1, ln. 14-22). Lewis teaches that soil fumigation is costly, but the increased yield afterwards may have a value very much more than the investment (col. 1, ln. 23-25). Lewis further teaches that living things such as bacteria,

fungi, nematodes and insects, as well as certain weeds, have been adequately checked by soil fumigation (col. 1, ln. 26-28).

Finding of *prima facie* obviousness

Rational and Motivation (MPEP 2142-43)

Therefore, it would have been *prima facie* obvious for one skilled in the art at the time of the invention to substitute monobromoacetic acid for monochloroacetic acid or monoiodoacetic acid in the compositions of Bergmann et al. because Swezey teaches that monobromoacetic acid, monochloroacetic acid and monoiodoacetic acid are useful phytotoxic compounds useful for controlling the growth of undesired plants. One of ordinary skill in the art would have an expectation of success in substituting monobromoacetic acid for monochloroacetic acid or monoiodoacetic acid in the compositions of Bergmann et al. because they are structurally similar compounds that are interchangeable and would be expected to have similar herbicidal effects on plants, as taught by Swezey.

It would also have been *prima facie* obvious for one skilled in the art at the time of the invention to control the growth of weeds with the compositions of Bergmann et al. with monobromoacetic acid substituted for monochloroacetic acid or monoiodoacetic acid because Swezey teaches that monochloroacetic acid, monobromoacetic acid and monoiodoacetic acid are suitable for controlling the growth of several varieties of weeds.

Furthermore, it would have been *prima facie* obvious for one skilled in the art at the time of the invention to fumigate the soil with the compositions of Bergmann et al. with monobromoacetic acid substituted for monochloroacetic acid or monoiodoacetic

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acid because Lewis teaches that fumigating soil is a well-known technique for the control of living things such as bacteria, fungi, nematodes and insects, as well as certain weeds.

It is noted that claim 20 is drawn to a method according to claim 1, said method *consisting essentially of* applying to the soil a pest reducing effective amount of bromoacetic acid. However, for the purposes of searching for and applying prior art under 35 U.S.C. 102 and 103, absent a clear indication in the specification or claims of what the basic and novel characteristics actually are, “consisting essentially of” will be construed as equivalent to “comprising.” See MPEP 2111.03.

From the teachings of the references, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention. Therefore, the invention as a whole would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made, as evidenced by the references, especially in the absence of evidence to the contrary.

Response to Arguments

Applicants argue on page 2 that the object of Bergmann was the desiccation of a crop plant (i.e., potato haulm(stems)) and reduction of tuber infection caused by the fungus *Phytophthora infestans*. However, the examiner respectfully argues that Bergmann also teaches fighting undesirable plant growth (pg. 4, Field of Application of the Invention). Bergmann further teaches spraying the soil with the application quantities disclosed in the examples before the first sowing (pg. 9, ln. 15-17).

Applicants further argue on pages 3-4 that it is well-known in the field of pesticide/herbicide chemistry that no two compounds, regardless of structure similarity, can be expected to have any or similar efficacy. Applicants refer to US 6,465,527, Herrett et al., Plant Physiology, 1961, 3: 358-363, and Chenoweth, Pharmacol. Rev. 1949, 1: 383-424 as evidence that structurally similar halogenated compounds do not possess similar properties. However, the examiner respectfully argues that Swezey clearly teaches that chloroacetic acid, iodoacetic acid, and bromoacetic acid are suitable phytotoxicants suitable for controlling the growth of undesired vegetation, such as weeds, without substantial permanent injury to the crop plant. It is noted that Swezey teach that plants are more readily controlled when in seedling stage or when putting out new and succulent growth than after they have reached maturity and hardened off to produce semi-woody tissues (i.e., pre-plant). Swezey also teaches spraying from 20 to 100 pounds per acre of the active agent. The instant claim is also drawn to applying the active agent during pre-plant stage, and the instant specification teaches that a suitable method of applying the active agent to the soil includes spraying or overhead sprinkler (pg. 4, [0031]). Therefore, Swezey teaches applying the active agent in the same manner as the instant claims.

Applicants further argue on page 5 that Bergmann only includes known herbicide active ingredients in the advantageous combinations, and that Bergmann only teaches two members on the monohaloacetic acid family, chloroacetic acid and iodoacetic acid. However, the examiner respectfully argues that Swezey clearly teaches that bromoacetic acid is a known toxicant for the regulation of undesired plant growth, and

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Swezey states that chloro- and bromoacetic acids are the preferred toxicants. Therefore, bromoacetic acid is clearly a known herbicide active ingredient.

Applicant's also argue on page 6 that foliar application to plants results in the direct interaction between plants and the active compound, but the examiner has not shown that the active compounds when applied to soil would retain their activity since compound could interact with the soil or be fully or partially broken down by microorganisms in the soil. However, the examiner respectfully argues that Bergmann et al. teaches applying known herbicide active ingredients, such as monochloroacetic acid or monoiodoacetic acid, to the soil prior to the first sowing in an effort to control undesired plant growth (pg. 9, ln. 15-17). Swezey teaches that haloacetic acid compounds, such as chloro-, bromo-, and iodoacetic acid, are especially effective when applied in seedling stage or when putting out new and succulent growth (col. 2, ln. 49-53), wherein bromoacetic acid is a preferred toxicant (col. 3, ln. 8-13). Therefore, application of haloacetic acids, including bromoacetic acid, to the soil would reasonably be expected to be effective for the control of undesired plant growth.

2. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bergmann et al. in view of Swezey and Lewis, as applied to claims 1, 2, 9, 10, 13, 15, 20 and 22 above, further in view of Watanabe et al. (US 3,975,181).

Applicant's claims

The Applicant claims a method for reducing tubers of *Cyperus rotundus* comprising administering bromoacetic acid to the soil by fumigation.

Determination of the scope and content of the prior art

(MPEP 2141.01)

Bergmann et al. teach a method for killing or fighting undesirable plant growth without damaging the succeeding cultures comprising applying combinations of 3,5-dihalogenated 4-hydroxy benzonitriles with monohalogenated acetic acids, as discussed above.

Swezey teaches a method of controlling plant growth by contacting said plants with a phytotoxic haloacetic acid compound, such as chloroacetic acid, bromoacetic acid and iodoacetic acid, wherein chloroacetic acid and bromoacetic acid compounds are preferred, and said plant includes sedge (*Cyperaceae*), as discussed above.

Lewis teaches that the use of soil fumigants has become quite common and used extensively since the 1940's with thousands of acres being fumigated annually, as discussed above.

Ascertainment of the difference between the prior art and the claims

(MPEP 2141.02)

Bergmann et al., Swezey and Lewis do not explicitly teach controlling the growth of *Cyperus rotundus*, a species of sedge or *Cyperaceae*. However, Watanabe et al. teaches a method of combating weeds including various species of sedge within the genus *Cyperus* comprising applying an effective amount of chloroacetic acid as a phytotoxicity agent to said weeds, cultivated crop plants, and/or soil (abstract; columns 1-3).

Finding of *prima facie* obviousness

Rational and Motivation (MPEP 2142-43)

Therefore, it would have been *prima facie* obvious for one skilled in the art at the time of the invention to fumigate the soil with the compositions of Bergmann et al. with monobromoacetic acid substituted for monochloroacetic acid or monoiodoacetic acid in order to control the growth of *Cyperus rotundus* because Watanabe et al. teach that monochloroacetic acid is suitable for controlling weeds of *Cyperaceae*. One skilled in the art would have been motivated to apply bromoacetic acid to *Cyperaceae* weeds, which intrinsically includes *Cyperus rotundus*, because Swezey teaches bromoacetic acid and chloroacetic acid are interchangeable in the control of weeds, and Watanabe et al. teach chloroacetic acid as an effective herbicide for the control of *Cyperaceae* weeds, which includes *Cyperus rotundus*.

From the teachings of the references, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention. Therefore, the invention as a whole would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made, as evidenced by the references, especially in the absence of evidence to the contrary.

Response to Arguments

Applicants argue on page 8 that a compound cannot be expected to have any or similar efficacy against *Cyperus* species even if it works on other plant species. However, the examiner respectfully argues that Watanabe et al. teaches that the herbicidal composition are especially useful in controlling the growth of *Cyperaceae* such as *Cyperus spp.*(sedges) (col. 3, ln. 44-47). It is noted that *Cyperus rotundus* is

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also referred to as purple nut sedge and red nut sedge. Thus, Watanabe et al. teach that monochloroacetic acid, when applied to soil (col. 2, ln. 27), is effective at controlling *Cyperus spp.*(sedges). Therefore, in view of the teachings of Bergmann et al. in view of Swezey and Lewis, it would have been obvious to control *Cyperus spp.*(sedges), such as *Cyperus rotundus*, by applying bromoacetic acid to the soil.

3. Claims 1, 2, 9, 10, 13, 15, 20-22 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hitchcock et al. (US 2,622,976) in view of Swezey (US 2,649,363) and Lewis (US 3,865,936).

Applicant's claims

Applicants claim a method for reducing pests in soil comprising fumigating the soil with bromoacetic acid, wherein said applying is pre-bedding, pre-transplant, pre-seed, or pre-plant.

Determination of the scope and content of the prior art

(MPEP 2141.01)

Hitchcock et al. teach an improved method of selective killing of certain plants through applying chloroacetic acid (col. 1, ln. 1-10). Hitchcock et al. further teach that chloroacetic acid can be taken up by the roots wherein the chemical goes into the plant and kills the top of the plant (col. 1, ln. 18 - col. 2, ln. 2). Hitchcock et al. teach that chloroacetic acid is a selective herbicide for many common weeds (i.e. *Amaranthus*) without causing noticeable injury to certain crop plants such as corn, potatoes, grasses, gladioli, and the like (col. 2, ln. 10-14; and Table I).

Hitchcock et al. teach that when chloroacetic acid is applied at a rate of 20 to 40 lbs/acre as a pre-emergence spray to soil, it kills young weeds without causing injury to corn planted just before the spray is applied (i.e. just after seeding but in the pre-plant stage) (col. 3, ln. 4-5 and 23-25). Hitchcock et al. further teach that buds of potato tubers may be inhibited or killed without noticeable injury to the tuber (col. 3, ln. 25-26). Also, Hitchcock et al. teach that chloroacetic acid exhibits no residual effect on crops where one crop follow another, and seeds can be planted the day after spraying the soil with the chloroacetic acid composition (col. 3, ln. 40-43).

Ascertainment of the difference between the prior art and the claims

(MPEP 2141.02)

Hitchcock et al. do not teach the chloroacetic acid composition to comprise bromoacetic acid, as instantly claimed. However, Swezey teaches the regulation of the growth of undesired vegetation by contacting plants and plant parts with a phytotoxic haloacetic acid compound of the group consisting of monochloroacetic acid, monobromoacetic acid and monoiodoacetic acid (col. 1, ln. 1-13). Swezey further teaches that monochloroacetic acid, monobromoacetic acid and monoiodoacetic acid are suitable for controlling the growth of Bermuda grass (*Cynodon dactylon*), Wild Mustard (*Synapis arvensis*), Burclover (*Medicago minima*), Prostrate Pigweed (*Amaranthus Albus*), sedge (*Cyperaceae*), filaree (*Erodium cicutarium/Erodium moshatum*), annual grasses, bull mallow (*Malva borealis*), wild oats, fiddleneck (*Phacelia tanacetifolia*), chickweed (*Cerastium* and *Stellaria*) and shepherds-purse (*Capsella bursa-pastoris*) (Examples 1-9).

Hitchcock et al. do not teach applying the composition at 100-400 lbs/acre, as instantly claimed. However, Swezey teach that the monohaloacetic acids are applied at volumes of 5-20 lbs/acre (col.1, ln. 31-32), 50-100 gallons/acre (col. 2, ln. 25-26), 40 lbs/acre (Example 1), 50 and 100 lbs/acre (Example 2), 20 lbs/acre (Example 3), 25.6 lbs/acre (Example 4), 20 lbs/acre (Example 5), 20, 40, 80, 160 and 320 gallons/acre (Example 5), 20 lbs/acre (Example 6), 35-40 lbs/acre (Example 7), 70 lbs/100 gallons and 300 gallons/acre (Example 8), and 150 gallons/acre (Example 9).

Also, Hitchcock et al. do not teach the method of applying the active ingredient to the soil to comprise fumigation, as instantly claimed. However, fumigating soil is a well-known method for applying herbicides to soil in an attempt to control undesired vegetation, as evidenced by Lewis. Lewis teaches that the use of soil fumigants has become quite common and used extensively since the 1940's with thousands of acres being fumigated annually (col. 1, ln. 14-22). Lewis teaches that soil fumigation is costly, but the increased yield afterwards may have a value very much more than the investment (col. 1, ln. 23-25). Lewis further teaches that living things such as bacteria, fungi, nematodes and insects, as well as certain weeds, have been adequately checked by soil fumigation (col. 1, ln. 26-28).

Finding of *prima facie* obviousness

Rational and Motivation (MPEP 2142-43)

Therefore, it would have been *prima facie* obvious for one skilled in the art at the time of the invention to substitute monobromoacetic acid for monochloroacetic acid in the compositions of Hitchcock et al. because Swezey teaches that monobromoacetic

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acid, monochloroacetic acid and monoiodoacetic acid are useful phytotoxic compounds useful for controlling the growth of undesired plants. One of ordinary skill in the art would have an expectation of success in substituting monobromoacetic acid for monochloroacetic acid in the compositions of Hitchcock et al. because they are structurally similar compounds that are interchangeable and would be expected to have similar herbicidal effects on plants, as taught by Swezey.

Also, it would have been *prima facie* obvious for one skilled in the art at the time of the invention to utilize up to 320 gallons/acre of the compositions of Hitchcock et al. with monobromoacetic acid substituted for monochloroacetic acid because Swezey teaches several examples wherein the haloacetic acid is used in concentrations of 5-210 lbs/acre and examples wherein the haloacetic acid is used up to 320 gallons/acre.

Furthermore, it would have been *prima facie* obvious for one skilled in the art at the time of the invention to fumigate the soil with the compositions of Hitchcock et al. with monobromoacetic acid substituted for monochloroacetic acid because Lewis teaches that fumigating soil is a well-known technique for the control of living things such as bacteria, fungi, nematodes and insects, as well as certain weeds.

From the teachings of the references, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention. Therefore, the invention as a whole would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made, as evidenced by the references, especially in the absence of evidence to the contrary.

Response to Arguments

Applicants argue on pages 8 and 9 that Hitchcock et al. teach the use of chloroacetic acid only for certain weeds, and does not teach or demonstrate the use of chloroacetic acid against *Cyperus* or *Cyperus* tubers. However, Hitchcock et al. teach that chloroacetic acid is effective at controlling the growth of *Amaranthus*., which is instantly claimed in claim 10.

4. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hitchcock et al. in view of Swezey and Lewis, as applied to claims 1, 2, 9, 10, 13, 15, 20, 21, 22 and 24 above, further in view of Watanabe et al. (US 3,975,181).

Applicant's claims

The Applicant claims a method for reducing tubers of *Cyperus rotundus* comprising administering bromoacetic acid to the soil by fumigation.

Determination of the scope and content of the prior art

(MPEP 2141.01)

Hitchcock et al. teach an improved method of selective killing of certain plants (i.e. pre-emergent control of weeds) through applying chloroacetic acid, as discussed above.

Swezey teaches a method of controlling plant growth by contacting said plants with a phytotoxic haloacetic acid compound, such as chloroacetic acid, bromoacetic acid and iodoacetic acid, wherein chloroacetic acid and bromoacetic acid compounds are preferred, and said plant includes sedge (*Cyperaceae*), as discussed above.

Lewis teaches that the use of soil fumigants has become quite common and used extensively since the 1940's with thousands of acres being fumigated annually, as discussed above.

Ascertainment of the difference between the prior art and the claims

(MPEP 2141.02)

Hitchcock et al., Swezey and Lewis do not explicitly teach controlling the growth of *Cyperus rotundus*, a species of sedge or *Cyperaceae*. However, Watanabe et al. teaches a method of combating weeds including various species of sedge within the genus *Cyperus* comprising applying an effective amount of chloroacetic acid as a phytotoxicity agent to said weeds, cultivated crop plants, and/or soil (abstract; columns 1-3).

Finding of *prima facie* obviousness

Rational and Motivation (MPEP 2142-43)

Therefore, it would have been *prima facie* obvious for one skilled in the art at the time of the invention to fumigate the soil with the compositions of Hitchcock et al. with monobromoacetic acid substituted for monochloroacetic acid in order to control the growth of *Cyperus rotundus* because Watanabe et al. teach that monochloroacetic acid is suitable for controlling weeds of *Cyperaceae*. One skilled in the art would have been motivated to apply bromoacetic acid to *Cyperaceae* weeds, which intrinsically includes *Cyperus rotundus*, because Swezey teaches bromoacetic acid and chloroacetic acid are interchangeable in the control of weeds, and Watanabe et al. teach chloroacetic

acid as an effective herbicide for the control of *Cyperaceae* weeds, which includes *Cyperus rotundus*.

From the teachings of the references, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention. Therefore, the invention as a whole would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made, as evidenced by the references, especially in the absence of evidence to the contrary.

Response to Arguments

Applicants argue on page 9 that Hitchcock et al. teach the use of chloroacetic acid only for certain weeds, and does not teach or demonstrate the use of chloroacetic acid against *Cyperus* or *Cyperus* tubers. However, the examiner respectfully argues that Watanabe et al. teaches that the herbicidal composition are especially useful in controlling the growth of *Cyperaceae* such as *Cyperus spp.*(sedges) (col. 3, ln. 44-47). It is noted that *Cyperus rotundus* is also referred to as purple nut sedge and red nut sedge. Thus, Watanabe et al. teach that monochloroacetic acid, when applied to soil (col. 2, ln. 27), is effective at controlling *Cyperus spp.*(sedges). Therefore, in view of the teachings of Hitchcock et al. in view of Swezey and Lewis, it would have been obvious to control *Cyperus spp.*(sedges), such as *Cyperus rotundus*, by applying bromoacetic acid to the soil.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan W. Schlientz whose telephone number is (571)272-9924. The examiner can normally be reached on 9:00 AM to 5:30 PM, Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann R. Richter can be reached on 571-272-0646. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

NWS

/John Pak/
Primary Examiner, Art Unit 1616